Madras Agric. J. 80 (12) : 661 - 662 December 1993
https://doi.org/10.29321/MAJ.10.A01712

CoH 4 - A NEW SORGHUM HYBRID

M. SURESH, S. PALANISAMY, N. MEENAKSHI GANESAN, P. VEERABADHRAN, G.A. PALANISAMY, AR. MUTHIAH and M.N. PRASAD.*

ABSTRACT

A new high yielding sorghum hybrid X 7555 was released as CoH 4 by Tamil Nadu Agricultural University, in 1991. It is a single cross hybrid of the cross 296 A x TNS 30, maturing in 105 days, and grows to height of 215 cm. On an average it gives 3707 kg of grain yield and 16 tonnes of fodder/ha under irrigated condition. This hybrid is recommended for cultivation under irrigated condition during summer season in Tamil Nadu.

Medium duration high yielding sorghum hybrids pave way for stepping up sorghum production especially under irrigated conditions. With this objective the breeding work was continued to develop new hybrids and the results of the newly released hybrid CoH4 are presented.

MATERIALS AND METHODS

Three hundred and twenty five single crosses were effected involving male sterile lines and pollen parents during 1982. The pollen parent TNS 30 was identified to be a best combiner for grain yield and the hybrid involving this pollen parent and the line 296 A was found to be outstanding in performance. Yield trials were conducted under irrigated conditions to confirm its yield potential. This hybrid was further tested in multilocation trials, in other research stations of the university. Adaptive research trials were conducted in farmers holdings in sorghum growing districts of the State. Simultaneously it was tested in All India Co-ordinated trials.

RESULTS AND DISCUSSION

The abstract of mean performance of sorghum hybrid X 7555 tested in station trials, multilocation trials and adaptive research trials for grain and fodder yields are furnished in Table 1. In the station trials conducted at Coimbatore, the new hybrid X 7555 has recorded 5044 kg of grain yield/ha with an increase of 45 per cent over CSH 5 and 30 per cent over CoH 3. When compared to varieties, it has recorded 8 per cent increased yield over the latest strain Co26. In multilocation trials, this hybrid has registered, on an average, 31 and 43 per cent increased yields over CSH 5 and Co 26 respectively. The superiority of this hybrid over other varieties and hybrids was also evidenced in adaptive research trials. In these trials it excelled CSH 5 by 14 per cent and Co 26 by 12 per cent in grain yield. The overall performance of 92 trails revealed the outstanding performance of this hybrid with an increase of 24 per cent over CSH 5, which is the ruling hybrid under irrigated condition.

With regards to straw yield, this new hybrid X 7555 has recorded a mean yield of 16t/ha with an increase of 5 and 10 per cent over CSH 5 and Co26 respectively. The fodder quality of this hybrid is better than CSH 5 and as good as that of other dual purpose varieties like Co 25 and Co 26. The general morphological characteristics of this hybrid and its parents are given in Table 2. The female parent of this hybrid 296 A is a well known male sterile line that has been used to develop several national hybrids viz., CSH 9, 10, 11, 12R and 13R. The male parent

* Tamil Nadu Agricultural University, Coimbatore - 641 003

Table 1. Abstract of mean performance of sorghum hybrid X 7555

Experiment	Grain yield (Kg/ha)					Fodder yield (t/ha)				
	X 7555	CSH 5	CoH 3	Co 25	Co 26	X 7555	CSH 5	CoH 3	Co 25	Co 26
Station trials (TNAU Cbe.)	5044	3732	3877	4640	4656	21.0	20.0	22.6	21.6	18.0
Multilocation trials	3431	2620	2463	2058	2394	21.4	20.2	23.2	22.0	17.7
Adaptive research trials 1989	3266	2891	2883	2746	2929	10.1	10.1	13.4	11.1	10.7
1990	3088	2680	-	2771	2778	11.9	10.7	-	10.9	11.8
Mean (92 Trials)	3707	2981	3074	3054	3189	16.1	15.3	19.7	16.4	14.6
% on CSH 5	124.4	100.0	103.1	102.4	107.0	105.2	100.0	128.8	107.2	95.4
% on Co 26	116.2	93.5	96.0	95.7	100.0	110.2	104.8	134.9	112.3	100.0

Table 2. General information on the sorghum hybrid X7555 and its parents

Character	Hybrid X 7555	Parents	
		296 A	TNS 30
Parentage	296A x TNS 30	-	(Co 18 x Co 22) x 1022
Plant height (Cm)	200 - 215	125 - 135	180 - 190
Days to 50 % flowering	60 - 65	67 - 70	64 - 67
Days to maturity	105 - 110	110 - 115	108 - 112
Pigment of the plant	Tan	Tan	Tan
Stalk	Juicy	Pithy	Juicy
Sheath colour	green	green	green
Node	green	green	green
Midrib	White	dull	dull white
Earhead shape & compactness	Elliptic semi compact	Elliptic compact	Elliptic semi compact
Glume colour	Straw coloured	Tan	Straw coloured
Glume covering	1/2 covered	1/2 covered	3/4 covered
Seed colour	Pearly white	Pearly cream	Pearly white
1000-grain weight (g)	25.0	24.8	24.2
Awn	Nil	Nil	Nil
Grain yield (Kg/ha)	6500	3000	5500
Fodder yield (t/ha)	20	10	15

TNS 30 is a good combiner with high yield potential and other desirable quality characters.

Besides high yield potential, early maturity by a week as compared to CSH 5 is an added advantage of this hybrid. The incidence of shootfly and earhead bug is comparatively less in this hybrid. This is found to be moderately resistant to leaf diseases, grain mould and sugary diseases. Based on the above desirable attributes, this hybrid X 7555 has been released as CoH 4 for cultivation during summer season under irrigated conditions in the State.